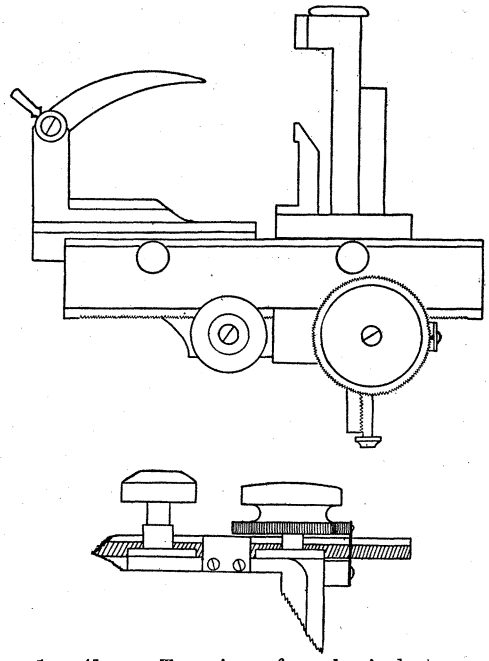

FIG. 1. *Above*—Top view of mechanical stage, showing "clicking" device. *Below*—Side view of part of mechanical stage, showing "clicking" device.

tive, especially when the material is a more or less uniform smear preparation of blood cells, bacteria, protozoa, etc., or of any objects of very small size. Some investigators use the vernier on the mechanical stage for slide exploration but this is an inconvenient and painstaking task and in a great many cases can not be used to advantage. The vernier is usually used by investigators in recording valuable data found on the slides.

This is essentially a "clicking" device placed slightly above and built into the mechanical stage. It is controlled by the knurled knob of the stage which moves the slide up and down. The device consists mainly of a finely made notched wheel with a metal tongue that fits snugly into the notches. The notched wheel is so calibrated that by using a 10x ocular and a 1.8 mm objective, one slight turn of the knob results in a definite click which indicates that one band has come into view. The operator then turns the other knob of the mechanical stage to move the slide left to right, as the case may be, to complete studying the one band. This, of course, is repeated until the entire slide is thus systematically studied.

Such a device should be a great aid to the investigator who must use the research microscope constantly. It enables him to examine a slide, scientifically and accurately, without any subjective approximations of his own. It also saves a considerable amount of time in slide study. An important item in its favor is that the strain on the operator's eyes is lessened. In fact, it can even afford him a second's relaxation after studying each band until the next click is heard. The device should prove to be invaluable in studying smear preparations of blood, blood diseases, bacteria, protozoa, etc., where the smear is more or less uniform and calls for very close and accurate exploration of the slide.

The writer uses the device in conjunction with a 10x ocular and 1.8 mm oil immersion objective for studying protozoa.

This device on the mechanical stage can be secured from the Spencer Lens Company, Buffalo, New York. They are also able to install the "clicking" device on their ordinary mechanical stage.

RALPH WICHTERMAN

TEMPLE UNIVERSITY

MICRO MOUNTS FOR REVERSE VIEWS

IN a recent number of SCIENCE,[1] Professor Jacot mentions the use of a special objective for the examination of the reverse side of micro mounts, especially for Acarina. It may interest him and others having the same problem to state that the use of Cellophane for mounts as described in SCIENCE last June[2] can be used with balsam or other media, although my description in SCIENCE referred especially to dry mounts.

I have balsam mounts of Acarina, thrips and Mallophaga, now six months old, with every appearance of indefinite preservation and with all the convenience of glass slides along with the advantage of high power microscopic use from either side, very compact storage and safety from breakage.

HERBERT OSBORN

OHIO STATE UNIVERSITY
COLUMBUS, OHIO

THE letter of Dr. Arthur Paul Jacot in No. 2015 of SCIENCE relative to the examination of the reverse side of micro mounts prompts me to describe a somewhat unconventional technique I have used for a similar purpose.

A strip of tin, aluminum or bakelite of micro slide size (one by three inches) and of thickness suitable to the material to be mounted and the mounting medium (usually .3 to .8 millimeter) has a one-half-inch hole pierced in its center; a No. 2 cover glass three quarters of an inch square is then cemented in the center of one side, forming a cell. A strip of ordinary writing-paper one inch wide is then wrapped three times around each end and cemented down, the combined thickness equaling or slightly exceeding that of the cover glass.

The specimen to be examined is now mounted as usual and covered with a second cover glass similar

[1] SCIENCE, 78: 2015, 128, August 11, 1933.
[2] SCIENCE, 77: 2007, 587, June 16, 1933.

to the first. Finally, a strip of kraft paper the size of the slide and with a one-half-inch hole in the center is cemented to each side of the slide.

Specimens prepared in this way have been found to be quite durable and to resist handling very well; and, of course, they may be used either side up without interfering with the correction of the ordinary objective or condenser.

WALTER J. SPIRO

WHITE PLAINS, N. Y.

SPECIAL ARTICLES

THE EFFECTS OF ALTERNATING CURRENTS UPON CUTANEOUS SENSORY THRESHOLDS

I BEG to express appreciation of Dr. Peterson's interesting historical communication on local electric anesthesia.[1] The note by Dr. Inman and myself[2] dealt with the application of a certain phenomenon to the anatomical procedure of outlining cutaneous nerve areas, rather than with the phenomenon itself; Dr. Peterson's note directs attention to the latter, and seems to render desirable the following discussion, which, however, is merely preliminary to more ample publication.

Seeking to improve Hughson's method of outlining cutaneous nerve areas by using the small alternator referred to in our note, Dr. Inman and I found that at certain levels of current strength the cutaneous area supplied by the nerve under the influence of the current was sufficiently insensitive to light touch to be outlined with reasonable accuracy and consistency, which was not true of painful and thermal sensations; although we recognized some effect upon the other thresholds, especially that of pain, only in the case of touch was it striking. My assistants and I have lately directed our efforts toward establishing quantitatively the occurrence or non-occurrence of the differential masking which Dr. Inman and I believed that we detected, utilizing the larger generator mentioned in our note, and elaborating accurate methods of gauging cutaneous sensory thresholds; a preliminary report has appeared.[3]

Fig. 1 exemplifies the results obtained in a number of experiments upon several subjects; some of its points may seem obscure, pending a detailed account of technique and discussion of results. It does show, however, a clearly differential susceptibility to elevation by the current on the part of the thresholds of the different sensations. In our experiments with the superficial branch of the radial nerve, the threshold for pressure[4] was most susceptible to elevation by

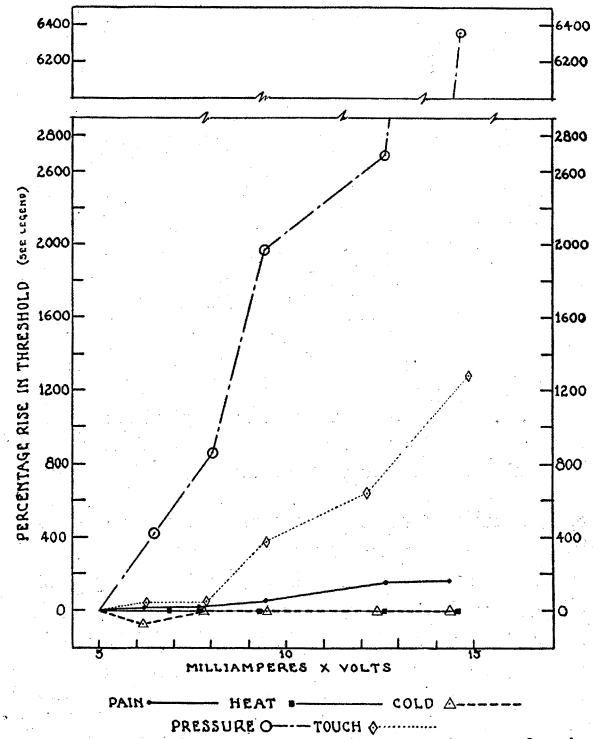

FIG. 1. Graph of the results of an experiment wherein the superficial branch of the left radial nerve was subjected (through the skin) to the influence of an alternating current of 400 cycles per second, and of strength increasing as indicated along the abscissa. The thresholds of the sensations were measured at different spots in the area supplied by the nerve, each sensation being tested at the same spot throughout the experiment. Before each experimental observation, the normal threshold for that sensation was measured. The ordinate records the rise in threshold above the immediately preceding normal reading, expressed as a percentage of the average of the normals throughout the experiment.

such means, next that for touch; pain was affected much less than these, but usually quite significantly; whilst the elevation of the thresholds for heat and cold was very slight, inconsistent and probably insignificant.

Since the appearance of our note, Dr. Arthur S. Gilson, Jr., of the Department of Physiology, Washington University, St. Louis, has informed us (*in litteris*) that, using the current from a Thyratron oscillator, he and Dr. H. B. Peugnet have obtained

[1] F. Peterson, SCIENCE, 77: 326, 1933.
[2] I. M. Thompson and V. T. Inman, *ibid.*, 77: 216, 1933.
[3] I. M. Thompson and A. Barron, *Anat. Rec.*, 48: 35 (Suppl.), 1931.
[4] Probably the sense of pressure is neither simple nor cutaneous. The outstanding sensitiveness to this current of the threshold for pressure was revealed by our method of stimulating (as we think) the sensation of pressure apart from that of touch.